

Animated Software Training Via the Internet: Lessons Learned

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The Mission Execution and Automation Section, Information Technologies and Software Systems Division at the Jet Propulsion Laboratory, recently delivered an animated software training module for operators at the Deep Space Network. The animated training software is in the form of a Command Subsystem simulation for on-line instruction. A paper describing the development of this animation was presented at the last Aerospace Conference.

The original objective was to construct a prototype for web-based delivery of mission software training that provided a mechanism for operators and engineers to master unique, operations-specific software subsystems. This training procedure had to accommodate operator and operations schedules, without interfering with hardware or software delivery schedules. On-line delivery of the training software made the tool available on demand for initial training, practice, or review.

The first exposure for the user population occurred during the development of the animated training package. An animated simulation remained on-line, in a usable form, for the last few months of the development cycle. Frequent access (measured hits on the site) indicated significant early interest in the tool, and user feedback was incorporated into its design. The formal introduction demonstration to the target operations audience presented a development that had matured with inputs from developers and system engineers.

The training prototype evolved into a software simulation using capabilities of the vector animation software. The benefits of a training simulation became apparent prior to subsystem delivery. During the testing period, subsystem hardware was not available to the operator community for training. Since delivery required trained operators, and since on-site testing would require constant usage of the system, there was no opportunity for operators to experience the actual subsystem for learning or practice. The training simulation, which could be delivered via the Internet or in stand-alone mode via the browser, even when no Internet connection existed, was ready to go anywhere, any time.

Lessons learned from the training development effort incorporate the resolution of problems in module design and structure, simplification of methods, version control, customer input, object control and orientation, planning, scheduling, team dynamics... many of the same design and development issues of a typical software development effort, but with an entirely different focus. That focus is the key element to on-line training development.